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DESIGN STRATEGIES

for encouraging alternatives to auto use
through local development review

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INTRODUCTION

Land use patterns directly affect how we travel to work, school and other destinations. Post World War II development patterns have created workplaces, shopping centers and residential neighborhoods where walking, bicycling or using transit are perceived as inconvenient, unsafe or unattractive. Increasingly, we rely on private automobiles as our primary means of mobility. As a result, both **automobile trips and vehicle miles traveled have risen dramatically, with serious consequences for air quality.**

Motor vehicles are a major source of carbon monoxide, fine particulates, pollutants that combine to form ground level ozone, and toxic air contaminants such as benzene. In order to meet and maintain state and national standards for these pollutants, **Bay Area residents will have to drive less.** However, unless walkways, bicycle routes and transit facilities are convenient, safe and attractive, many of us will continue to use cars even for short neighborhood trips. At work sites, employees will drive to restaurants, shops

and banks at midday rather than walk or bicycle across parking lots and wide, heavily-traveled streets. Potential transit users will be discouraged if the placement and orientation of buildings and parking lots fail to provide direct pedestrian connections between building entrances and the street, and if transit stops are not linked with pathways and nearby activity centers.

Design strategies for encouraging alternatives to auto use through local development review identifies site planning and design approaches that should be considered in the local development process. Illustrations of specific site and neighborhood design principles are supplemented by development review checklists to assist planners and decisionmakers in evaluating subdivision and project proposals.

This booklet is published as Appendix F to *Improving Air Quality Through Local Plans and Programs*, one of a series of tools available to help local jurisdictions address issues of local and regionwide concern.

STREET LAYOUT AND DESIGN

1

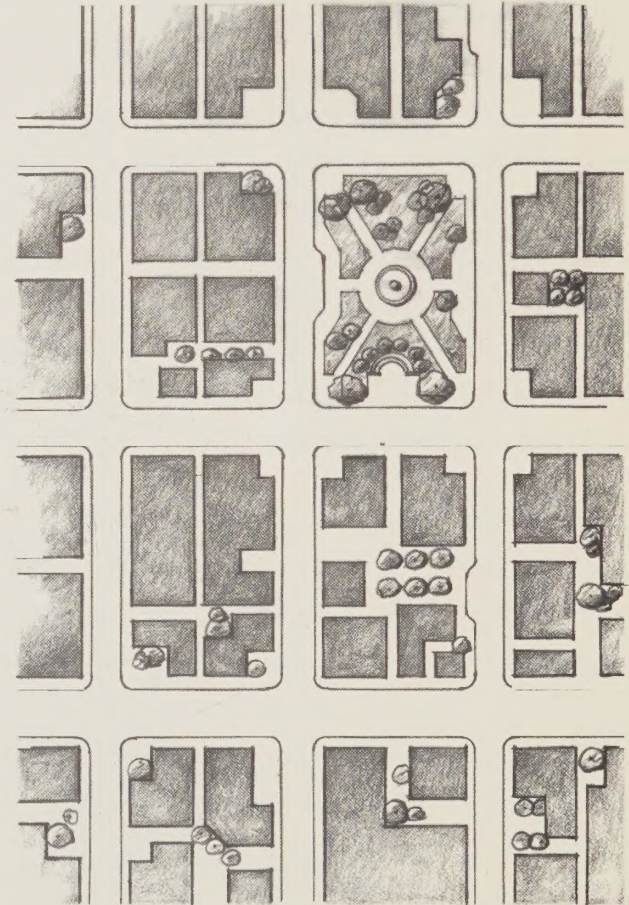
Design street patterns to provide **multiple and parallel routes** between destinations.

A rectangular grid pattern, modified to adapt to topography or natural conditions, or to afford vista terminations, can maximize the number of possible routes.

Applicable to new neighborhood design.

Implementation

- ▲ The design and pattern of streets should accommodate automobiles, transit, and emergency vehicles while also creating a public realm in which pedestrian and bicycle travel is efficient and secure. In order to provide a comfortable walking environment, a street system should allow for a sense of orientation and reasonably direct routes of travel.



A grid pattern of streets provides a sense of orientation and choices of travel.

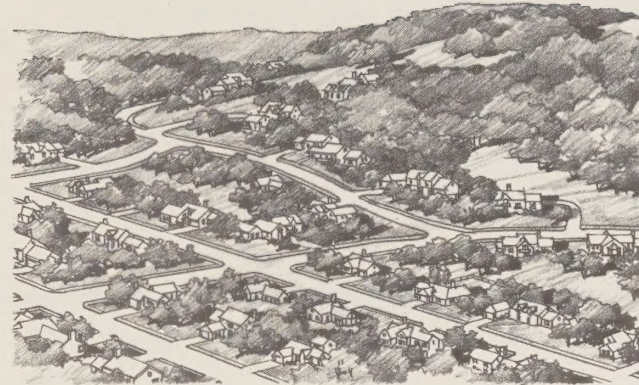
- ▲ A grid pattern may be modified to physically adapt to these situations:

topography, such as prominent ridgelines, excessive slope and grading considerations



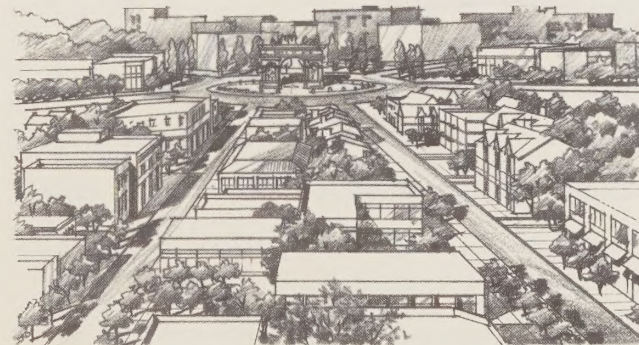
riparian area

vistas, such as views of geological and cultural landmarks, parks or plazas



prominent ridgelines

natural conditions, such as vegetation, habitat, soils and hydrology



views

2

Provide **sidewalks and bikeways** along urban arterials and collector streets.

Applicable to suburbs and urbanized areas through local ordinances and subdivision regulations.

Applies to new and reconstructed arterial and collector streets and new development along such streets.

Recommended for streets connecting residential neighborhoods, schools, parks and downtowns in small communities.

Implementation

- ▲ Direct and convenient routes for pedestrian travel should be provided by sidewalks along streets in a well connected street network.
- ▲ Sidewalks should be provided in the construction or reconstruction of arterial and collector streets, and be part of frontage improvements with all new development or redevelopment activities.
- ▲ Bike lanes, clearly defined by striping and signs, should be provided on arterial and major collector streets.

CONNECTIONS BETWEEN COMMUNITY ACTIVITIES

3

Provide **pedestrian and bicycle connections** between **residential** areas and nearby **transit** stations & stops, commercial areas, centers of employment, parks and schools.

Applies to new development and redevelopment in urban and suburban areas.

Implementation

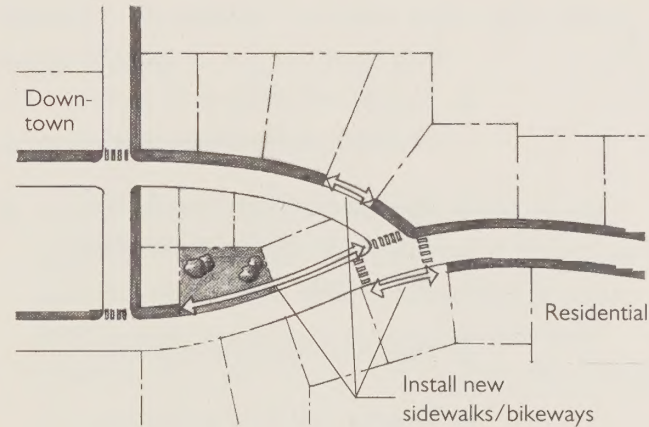
- ▲ New residential development proposals should identify and provide pedestrian and bicycle connections between the site and nearby areas of community activity, such as shopping centers, schools, parks, and transit stops.



Walkways should provide access to areas of community activity

- ▲ Development plans should identify existing and proposed bus routes, pullouts or other transit facilities located within 100 feet of site.
- ▲ Applicants for residential development along existing or proposed transit routes should consult with the transit agency on necessary transit improvements and assist in providing pedestrian and bicycle connections to these improvements.

- ▲ New residential development should assist in providing connections for bicycle and pedestrian travel between the site and centers of employment such as business parks, hospitals, universities, and central business districts.
- ▲ Sidewalks and bikeways should be provided along the frontage of residential development on arterial and collector streets.



Pedestrian and bicycle connections should be provided between new residential areas and centers of employment.

4

Provide **pedestrian connections** between **employment** centers and **nearby uses** such as restaurants, stores, post offices, & banks.

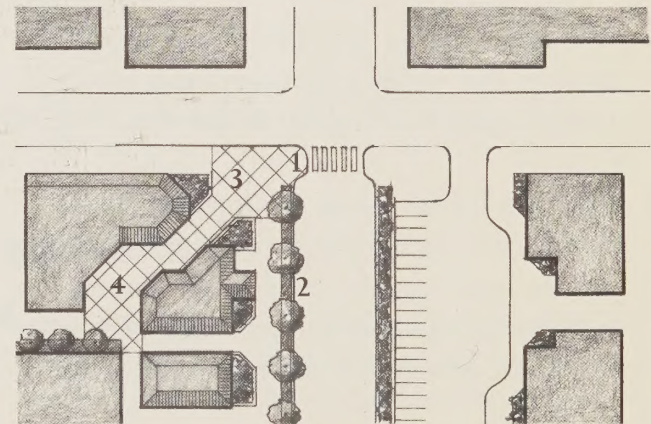
Applicable to urban and suburban areas.

Applicable to employment centers such as business parks, hospitals, colleges and universities, city and county administrative offices and within central business districts.

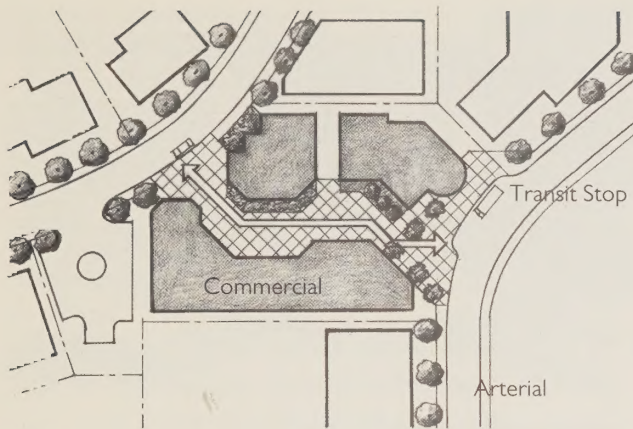
1. Extend sidewalks at corners to facilitate pedestrian crossing.
2. Provide street trees and landscaping to buffer pedestrians from traffic.
3. Provide small corner plazas.
4. Connect walkways to site interiors.

Implementation

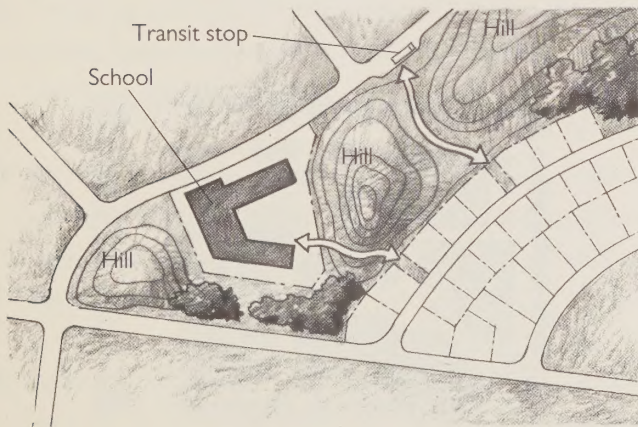
- ▲ Development and expansion of employment centers should provide safe pedestrian and bikeway access along city streets.
- ▲ Private pathways should be well signed and designed to provide a reasonably direct route to sidewalks and nearby crosswalks.



Pedestrian connections should be provided between centers of employment and restaurants, banks, and related services.



Provide accessways to transit stops.



Provide accessways between activity areas where existing conditions make a street connection infeasible

5 Provide pedestrian and bicycle **accessways to transit stops** where a street connection is not possible in developments along existing and future transit routes.

Applicable to subdivisions, planned developments, shopping centers and industrial parks.

Specifically applicable where addition of a walkway/ bikeway would significantly reduce walking or cycling distance to an existing or planned transit stop, school, shopping center or neighborhood park.

Implementation

- ▲ Pedestrian and bicycle access to transit should generally be provided along streets, with separate bike or pedestrian accessways provided within and between major community activity areas where a street connection is not otherwise feasible or appropriate.

SITE DESIGN

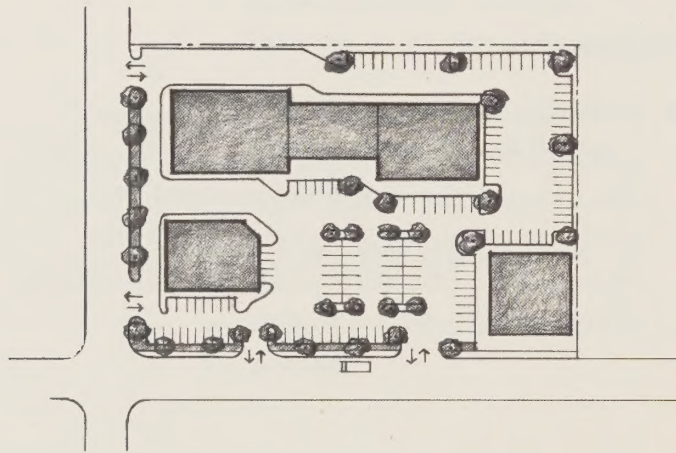
6

Coordinate building placement, orientation and design in order to create **pedestrian-oriented spaces and pathways**.

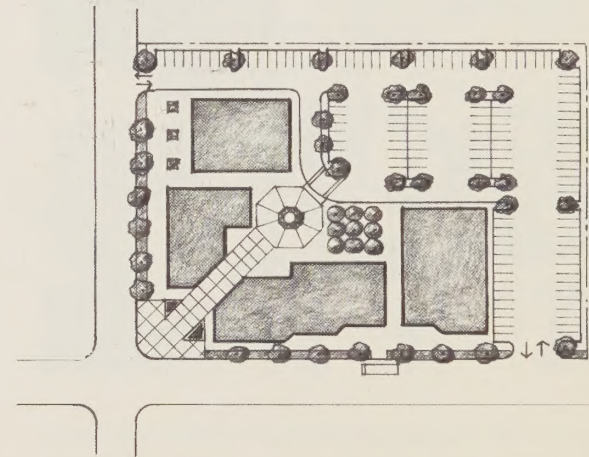
Applies to major buildings in commercial, public and residential developments, and centers of employment.

Implementation

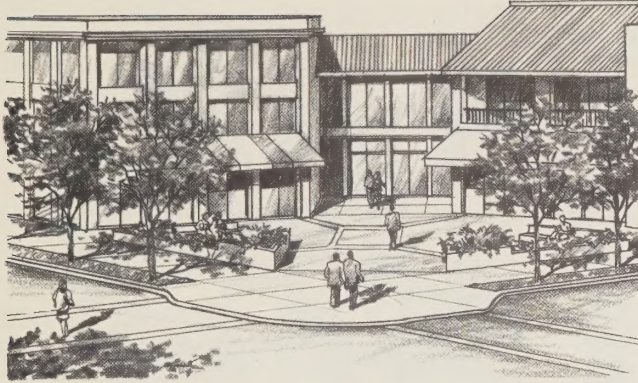
- ▲ Site design of building, pathways and parking should create a comfortable walking environment and minimize the impact of vehicular circulation upon pedestrian spaces and pathways.
- ▲ In commercial areas, ground level uses should provide visual stimulation to pedestrians along streets and pedestrian pathways. These uses may include outdoor dining areas, window displays, small plazas and sitting areas.



NOT THIS:
Parking dominates the streetscape



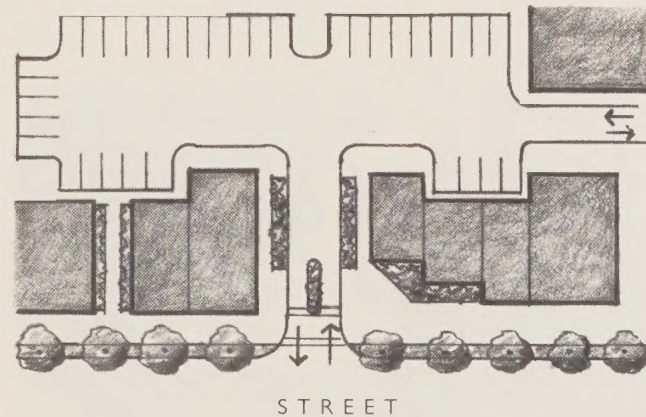
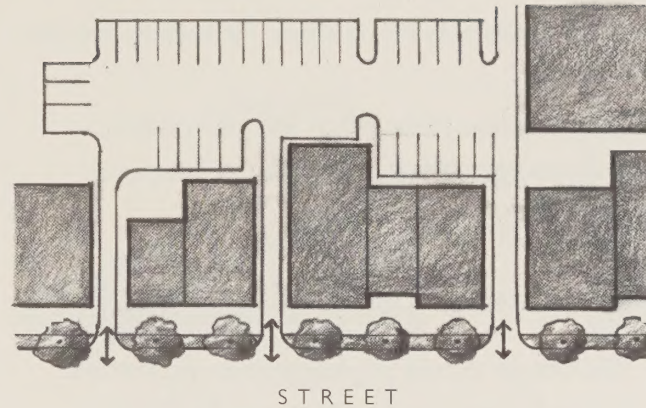
THIS:
Cluster buildings to create pedestrian zones



Provide public spaces on streets, particularly near transit stops.

- ▲ Buildings should be clustered to create pedestrian zones and avoid wide expanses of parking between building entrances.
- ▲ Driveway crossings should be minimized. Internal parking lot circulation and design should maintain ease of access and comfort for pedestrians and transit users.
- ▲ Safe and accessible walkways to building entrances should be provided from the street and from parking areas.

NOT THIS:
Numerous driveways cross sidewalk



THIS:
Minimize driveway crossings

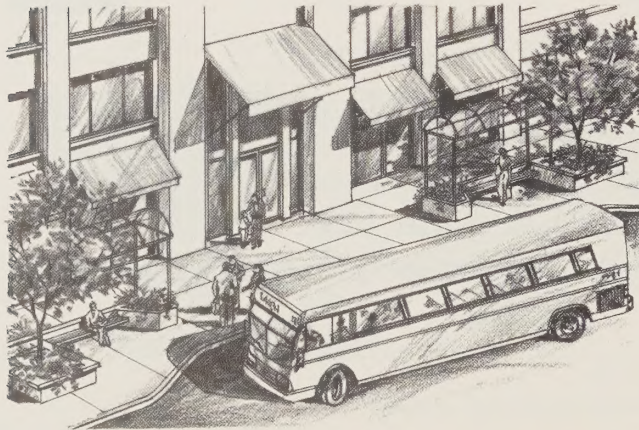
7

Orient buildings and main entrances toward streets with transit facilities.

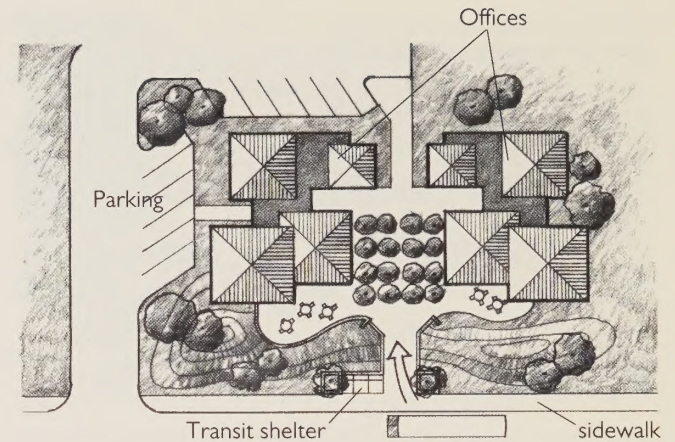
Applicable to new retail, office and institutional buildings on parcels within 600 feet of existing or planned transit routes.

Implementation

- ▲ Site design should promote direct pedestrian access between transit stops and building entrances.



Orient building entrances to transit stops



Provide pedestrian connections between building entrances and transit

- ▲ Coordinate the placement and design of buildings to provide pedestrian connections between the site interior and transit stops.
- ▲ Design buildings so that their primary orientation is toward streets served by transit rather than toward parking areas.

8

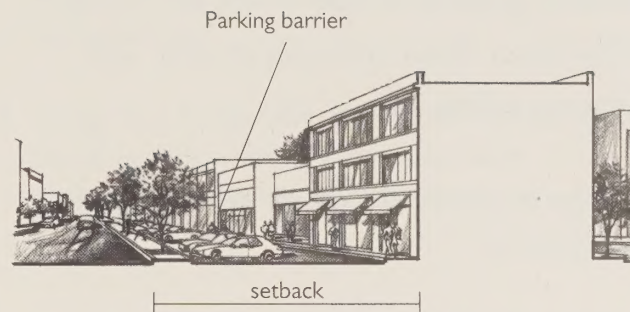
Minimize large setbacks for retail, employment and multi-family land uses, particularly on streets with transit facilities.

Applicable to new development and redevelopment in urban areas.

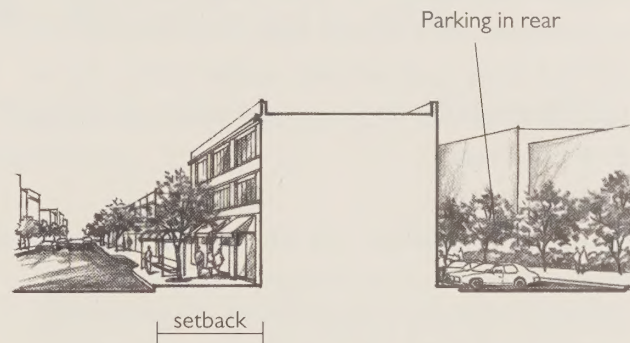
Implementation

- ▲ Building setbacks along streets with transit facilities should be minimized to create a more attractive, visually stimulating streetscape.
- ▲ Building entrances should be well-defined and oriented toward the frontage sidewalk.
- ▲ In commercial areas, retail and other pedestrian-oriented first-floor uses should be encouraged.
- ▲ Parking should be relocated from the front to the rear and sides of buildings, particularly for sites adjacent to existing or proposed transit facilities.

NOT THIS:



THIS:



Locate buildings closer to the street and shift parking lots away from the streetscape to provide pedestrians and transit users a more convenient and accessible walking environment.

Provide attractive shelters, benches, landscaping and lighting at transit boarding points to **protect riders** from the weather, buffer them from abutting streets, and **promote safety**.

Applicable to all communities with existing or planned transit facilities.

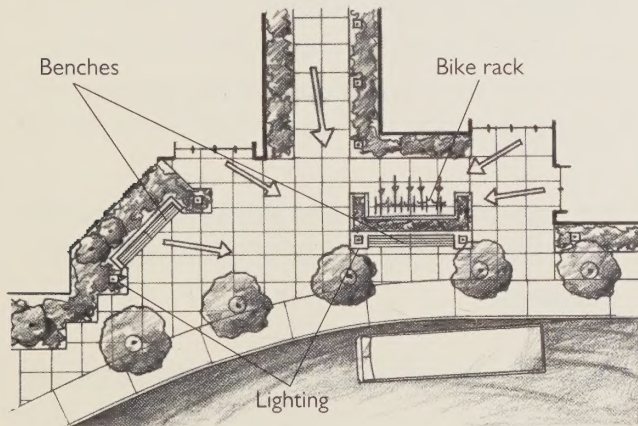
Implementation

- ▲ In new commercial and office development, the location and design of transit stops should be coordinated with nearby areas of pedestrian activity, including appropriately-scaled public places such as small corner plazas and walkways along first-floor uses.
 - ▲ Transit stops, shelters and pathways should be an integral part of site design, with high visibility and easy access from the site buildings and walkways.
-
- Design transit stops and pathways to provide comfort and security through natural surveillance by maintaining lines-of-sight with building entrances, walkways and windows.
- ▲ Trees and vegetation should offer a sense of shelter and define pedestrian spaces, but should not block lines-of-sight from buildings. Tree canopies should be high enough to maintain lines-of-sight from walkways and building entrances and windows.
 - ▲ Pedestrian-scaled lighting should be provided for transit stops and walkways.

Promote secure and conveniently located **bicycle parking and storage** in office, commercial and multi-family residential developments.

In urban areas, specifically applicable to sites of commercial, office and multi-family residential uses.

In small communities, applicable to centers of commercial activity adjacent to central plazas and main streets.



Bicycle facilities should be placed in areas of high surveillance.

Implementation

- ▲ Locate bike racks in areas of high surveillance, with visibility from the street, building entrances and windows.
- ▲ Design and locate bike parking and storage facilities to occupy a well-defined area, with pedestrian-scaled lighting for security at night.

Reduce parking requirements in developments served by transit.

Applicable to most uses; e.g. retail, office, residential institutional.

Implementation

- ▲ Developments should be allowed to reduce the number of required parking spaces by 10% to 20% by providing a transit stop and related amenities along a designated transit route.

THE WORKPLACE: DEVELOPMENT REVIEW CHECKLIST

- ☐ Do employees have alternatives to using their automobiles at lunchtime? Is there convenient access to a restaurant or deli, grocery store, post office, bank or other personal services?
- ☐ Can any of these services be located on site?
- ☐ Does the development provide pedestrian and bicycle connections to related services?
- ☐ Does the site offer clearly defined and reasonably direct pedestrian connections to transit?
- ☐ Do transit facilities provide an attractive and a secure environment with protection from the weather?
- ☐ Are there sidewalks and bikeways along the site frontage? Do these amenities connect to sidewalks and streets on adjacent and nearby properties?
- ☐ Are there convenient crosswalks to other uses on and off site?
- ☐ Does the layout of the site create usable pedestrian circulation?
- ☐ Are pedestrian routes buffered from street traffic and parking areas?
- ☐ Does the development provide secure bicycle storage and parking facilities?
- ☐ Are buildings and entrances sited to be easily accessible from the street?
- ☐ Is the first floor use of the building pedestrian oriented?
- ☐ Are amenities provided to help create a pedestrian environment along and between the site buildings?
- ☐ Is most parking located to the side or to the rear of buildings?

RESIDENTIAL PROJECT: DEVELOPMENT REVIEW CHECKLIST

- ☐ Can residents easily and safely walk or bicycle to a store, post office, park, cafe or bank?
- ☐ Are there bikeways? Do they connect with bikeways in other neighborhoods?
- ☐ Does the development provide bus pullouts and transit stops?
- ☐ Are there trees sheltering streets and sidewalks?
- ☐ Are there well-defined and reasonably direct pedestrian routes to transit?
- ☐ Does the site's street pattern connect with streets in adjacent developments? Do streets provide access to an existing transit street or facility?
- ☐ Do the streets provide choices of travel?
- ☐ Does the street pattern provide a sense of orientation with areas of activity and nearby neighborhoods and streets?
- ☐ Are there sidewalks between residences and other uses and areas of activity?
- ☐ Are pedestrian paths buffered from fast-moving traffic and expanses of parking?

This booklet is published by the Association of Bay Area Governments and the Bay Area Air Quality Management District. For additional copies, or related publications, contact:

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